

-29-

I claim:

1. A slide system for microscopy comprising:  
a slide base;  
a cover slip; and  
5 an adhesive layer on a surface of at least one of said slide base and said cover slip, said adhesive layer surrounding a portion of said surface such that when said slide base and cover slip are engaged with said adhesive layer to form an assembled slide, said adhesive layer and said cover slip enclose and define a sealed sample area.
- 10 2. A slide system according to claim 1 wherein said adhesive layer is located on said slide base.
3. A slide system according to claim 1 further including at least one expansion volume on at least one of said slide base and cover slip, said expansion volume being adjacent said  
15 adhesive layer within said sealed sample area.
4. A slide system according to claim 3 including two expansion volumes on at least one of said slide base and cover slip within said sealed sample area, one of said two expansion volumes being adjacent said adhesive layer and the second of said two expansion volumes  
20 being spaced from said first expansion volume by a land.
5. A slide system according to claim 1 further including at least one expansion volume on at least one of said slide base and said cover slip and an active element, said expansion volume surrounding said portion of said surface and said active element surrounding said expansion  
25 volume and being between said adhesive layer and said expansion volume within said sealed sample area.
6. A slide system according to claim 5 including two expansion volumes surrounding said sealed sample area said active element being between the outermost of said two expansion  
30 volumes and said adhesive.

SUBSTITUTE SHEET ( rule 26 )

-30-

7. A slide system according to claim 5 wherein said active element is an antibiotic.
8. A slide system according to claim 5 wherein said active element is an antiseptic.
- 5 9. A slide system according to claim 1 further comprising at least one test material applied to at least one of said slide base and cover slip such that said test material is within said sealed sample area.
- 10 10. A slide system according to claim 9 including at least two test materials, at least one of said test materials being applied to said slide base and at least another of said at least two test materials being applied to said cover slip such that, when said sealed sample area is formed, said test materials on said cover slip are proximal said test materials on said slide base.
- 15 11. A slide system according to claim 1 further comprising a sealed package, said slide base and said cover slip being clean and sterile within said wrapper.
12. A slide system according to claim 11 wherein said package includes a first surface within said package to which said slide base and said cover slip are releasibly adhered.
- 20 13. A slide system according to claim 12 wherein said slide base and said cover slip are adhered to said first surface in a spaced, juxtaposed arrangement such that, by folding said first surface at a point between said slide base and said cover slip said slide base and cover slip are brought into engagement to form said sealed sample area.
- 25 14. A slide system according to claim 13 wherein said point between said slide base and said cover slip comprises a fold line.
15. A slide system according to claim 13 wherein said package further includes means to receive a mechanical drive to move said package.
- 30 16. A slide system according to claim 1 wherein each of said slide base, said cover slip and

**SUBSTITUTE SHEET ( rule 26 )**

-31-

said adhesive have a preselected thickness such that, when said assembled slide is formed it has a preselected overall thickness.

17. A slide system according to claim 16 wherein said preselected thickness of each of said slide base, said cover slip and said adhesive are the same.

18. A slide system according to claim 16 further comprising a recess in said surface, said adhesive being placed in said recess.

19. A slide system according to claim 16 further comprising a spacer having first and second sides and a preselected thickness and wherein said spacer surrounds said portion of said surface and said first side engages said adhesive on said surface and said second side includes an adhesive to engage the other of said slide base and cover slip, said sealed sample area being formed by said slide base, spacer, each of said adhesives and said cover slip.

20. A slide system according to claim 1 wherein said adhesive is releasible.

21. A slide system according to claim 1 further including at least one conduit extending between said sealed sample area and a surface of said slide base.

22. A slide system according to claim 21 including at least two conduits extending between said sealed sample area and a surface of said slide base.

23. A slide system according to claim 21 wherein said surface is the surface of said slide base which forms part of said sealed sample chamber.

24. A slide system according to claim 21 wherein said surface is opposite the surface of said slide base which forms part of said sealed sample chamber.

25. A slide system according to claim 1 wherein at least one of said slide base and said cover slip includes at least two electrical conductors extending between said sealed sample area

**SUBSTITUTE SHEET ( rule 26 )**

-32-

and a surface on said at least one of said slide base and said cover slip outside said sealed sample area.

26. A slide system according to claim 25 wherein one of said at least two conductors is on  
5 said slide base and the other of said at least conductors is on said cover slip.
27. A slide system according to claim 25 further comprising an insulating coating on said conductors within said sealed sample.
- 10 28. A slide system according to claim 1 wherein at least one of said slide base and said cover slip includes an electrical conductor in said sealed sample area and having at least two portions of said conductor extending outside of said sealed sample area.
29. A slide system according to claim 25 further comprising a dielectric coating on said  
15 conductors within said sealed sample.
30. A slide system according to claim 25 further comprising a biologically inert coating on said conductors within said sealed sample.
- 20 31. A slide system according to claim 25 further comprising a chemically inert coating on said conductors within said sealed sample.
32. A slide system according to claim 1 further comprising at least one piezoelectric transducer in acoustic contact with said sealed sample area.  
25
33. A slide system according to claim 1 further comprising a light source on said slide base, said light source illuminating said sealed sample area.
34. A slide system according to claim 33 wherein said light source is a light emitting diode.  
30
35. A slide system according to claim 33 wherein said light source is a semiconductor laser.

**SUBSTITUTE SHEET ( rule 26 )**

-33-

36. A slide system according to claim 1 further comprising a light sensor on said slide base, said light sensor producing a output representative of an illumination level in said sealed sample area.
- 5 37. A slide system according to claim 36 wherein said light sensor is a photodiode.
38. A slide system according to claim 9 wherein said test material comprises a stain.
39. A slide system according to claim 38 wherein said stain is biohazardous.
- 10 40. A method of preparing a slide for microscopy, comprising the steps of:  
(i) placing a sample material on a surface of one of a slide base and a cover slip within a sample area surrounded by an adhesive material on said surface;  
(ii) locating the other of said cover slip and said slide base over said sample area to  
15 engage said adhesive material; and  
(iii) pressing said slide cover and said slide base to form a sealed sample area.
41. The method of claim 40 wherein step (iii) is performed with a preselected force.
- 20 42. The method of claim 40 where in step (iii) said pressing is performed until a pre-selected thickness of said prepared slide is obtained.
43. A slide system for microscopy comprising:  
a cover slip; and  
25 a slide base including a surface having an expansion volume formed there, said expansion volume surrounding a sample area on said surface and receiving sample material from said sample area when said cover slip is placed on said sample area.
44. A slide system according to claim 43 further comprising a sealed package, said slide  
30 base and said cover slip being clean and sterile within said wrapper.

SUBSTITUTE SHEET ( rule 26 )